

REMARKS

By this amendment, claim 11 has been cancelled without prejudice. These amendments are made to even more clearly recite the claimed invention, do not add prohibited new matter and are fully supported by the specification. Reconsideration and withdrawal of the rejections set forth in the outstanding Office Action are respectfully requested in view of the foregoing amendments and the following remarks.

Rejection under 35 U.S.C. § 112, first paragraph

The Office Action rejects claim 11 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Without agreeing with or acquiescing to the rejection, Applicant notes that claim 11 has been cancelled without prejudice. Therefore, Applicant respectfully requests withdrawal of the rejection under 35 U.S.C. § 112, first paragraph.

Rejection Under 35 U.S.C. § 103(a)

The Office Action rejects claims 2-3, 5, and 7-10 under 35 U.S.C. § 103(a) as being unpatentable over Lindhoff (U.S. Patent No. 6,373,888, hereinafter the '888 patent) and Lindhoff et al. (U.S. Patent No. 6,463,107, hereinafter the '107 patent) and Jayaraman et al. (U.S. Patent Application Publication No. 2003/0087622, hereinafter "JAYARAMAN"). Furthermore, the Office Action rejects claims 4 and 11 under 35 U.S.C. § 103(a) as being unpatentable over the '888 patent, the '107 patent, and Baugh et al. (U.S. Patent No. 5,150,379, hereinafter "BAUGH").

Initially, Applicant notes that the Examiner acknowledges that both the '888 patent and the '107 patent do not "expressly disclose the interference component comprising adjacent

interference and inter-symbol interference” (page 3 of the outstanding Office Action).

Therefore, the Examiner relies upon JAYARAMAN to teach this feature. The Examiner asserts that JAYARAMAN teaches an adaptive filter and an adaptive equalizer, which allegedly reduce adjacent channel interference and inter-symbol interference.

However, Applicant notes that the claims explicitly recite (using claim 2 as a non-limiting example):

a canceller configured to cancel an interference component included in the time unit *using the adjusted filter*, the interference component comprising adjacent channel interference and inter-symbol interference

Although JAYARAMAN teaches that an adaptive filter and an adaptive equalizer may reduce adjacent channel interference and inter-symbol interference, the adaptive filter and adaptive equalizer do not comprise the claimed canceller because the adaptive filter and an adaptive equalizer do not “us[e] the adjusted filter” described in the claims. Claims 2, 3, 5, and 7-10 recite that the adjusted filter is set or adjusted “according to the determined modulation scheme” (i.e., “a tap coefficient controller configured to control tap coefficients to *set the filter according to the determined modulation scheme...*”). Neither the adaptive filter nor the adaptive equalizer in JAYARAMAN are adjusted based on a modulation scheme determiner. The Examiner relies upon JAYARAMAN to supplement the teachings of the ‘888 patent and the ‘107 patent because JAYARAMAN teaches a *result* or *output* of the claimed invention (i.e., cancelling adjacent channel interference and inter-symbol interference). Thus, the Examiner concludes that one skilled in the art would arrive at the claimed invention by combining the teachings of JAYARAMAN, the ‘888 patent, and the ‘107 patent.

However, JAYARAMAN merely teaches the result or output of the claimed canceller without teaching the mechanism, recited in the claims, by which the canceller provides this result

or output. Although JAYARAMAN teaches reducing adjacent channel interference and inter-symbol interference (*i.e.*, one of the results or outputs of the claimed canceller), the mechanism by which the adaptive filter and an adaptive equalizer of JAYARAMAN operates is inconsistent with the teachings of the claimed canceller because the adaptive filter and an adaptive equalizer of JAYARAMAN do not use an adjusted filter, which is adjusted based on a modulation scheme determiner, as recited in the claims.

Thus, JAYARAMAN fails to teach the claimed canceller. Furthermore, the '107 patent does not teach a canceller that cancels *both* adjacent channel interference and inter-symbol interference based on the claimed modulation scheme determiner (as the Examiner acknowledges on page 3 of the outstanding Office Action). Therefore, Applicant submits that one skilled in the art would not arrive at the claimed invention, based on the combination of the cited art, because JAYARAMAN does not cure the acknowledged deficiencies of the '107 patent and the '888 patent. For this reason alone, Applicant respectfully requests withdrawal of the outstanding rejections.

Furthermore, even assuming *arguendo* that JAYARAMAN taught the claimed canceller, Applicant submits that one skilled in the art would not combine the teachings of JAYARAMAN, the '107 patent, and the '888 patent, due to the disparate means of operation of these publications, (as discussed above). In addition, in order to further emphasize the distinctions between the cited publications and the claimed invention, Applicant further notes that independent claims 2, 3, and 10 have been amended to recite "wherein the adjusted filter is adjusted based on the determined modulation scheme of the modulation scheme determiner" (using claim 2 as a non-limiting example). For at least the reasons provided above, Applicant submits that the cited

publications do not anticipate or render obvious the claimed invention, and respectfully request withdrawal of the outstanding rejections under 35 U.S.C. § 103(a).

Furthermore, in response to the rejection of claim 3, Applicant notes that although the Examiner asserts that JAYARAMAN teaches the claimed interference level detector which detects adjacent channel interference (recited in claim 3), Applicant submits that JAYARAMAN merely teaches detecting noise (*see, e.g.*, JAYARAMAN, col. 7, lines 6-26), rather than adjacent channel interference (as recited in claim 3). Accordingly, Applicant submits that the combination of JAYARAMAN, the '888 patent, and the '107 patent fail to teach or render obvious all of the elements of claim 3, and respectfully request withdrawal of the outstanding rejection.

Furthermore, as for the rejection of claim 4, the Examiner alleges that BAUGH discloses the claimed error measurer. However, upon review of BAUGH, Applicant submits that BAUGH merely teaches adjusting a tap coefficient based on error, rather than "a tap coefficient controller configured to control tap coefficients to set the filter *based on the measured error...*", wherein the claimed "measured error" is output from the claimed "error measurer configured to measure an error of the received signal that occurs due to a transmission path characteristic by comparing the known signal pattern included in the received signal with a known signal pattern obtained by canceling the transmission path characteristic," as recited in the claims (*see, e.g.*, BAUGH, col. 4, line 63, to col. 5, line 4). The Examiner has failed to point out any section in BAUGH or the other cited publications which show all of the features of the claimed error measurer. Accordingly, because BAUGH fails to disclose the claimed error measurer and both the '888 patent and the '107 patent fail to disclose the claimed error measurer, Applicant submits that the combination of JAYARAMAN, the '888 patent, and the '107 patent fail to teach or render

obvious all of the elements of claim 4, and respectfully request withdrawal of the outstanding rejection.

Lastly, even in view of recent clarification of standards for combining prior art by the Supreme Court (e.g., *KSR International v. Teleflex*), Applicant submits that there is no logical reason to combine the cited publications. as explained in section 2142 of the MPEP, “[t]he key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR International Co. v. Teleflex Inc.*, ...[127 S. Ct. 1727 (2007)], 82 USPQ2d 1385, 1396 (2007) noted that the analysis supporting a rejection under 35 U.S.C. § 103 should be made explicit. The Federal Circuit has stated that ‘rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.’ ” *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006).

The Examiner does not provide reasons why the claimed invention would be obvious. Rather, the Examiner merely concludes it would have been obvious to one skilled in the art at the time the invention was made to combine the teachings of JAYARAMAN, the ‘888 patent, and the ‘107 patent “in order to provide efficient information for calculating equalization setting[s] for better interference cancellation or reduction” (*see* page 4 of the outstanding Office Action) or “in order to provide more information on received signals to refine [the] signal filtering process” (*see* page 5 of the outstanding Office Action). Applicant submits that the Examiner is relying upon impermissible hindsight by relying upon the disclosed advantages of the claimed invention, as provided in the Applicant’s own specification, as a roadmap for combining the cited publications.

Furthermore, upon review of the exemplary rationales provided in MPEP § 2143, it appears that the Examiner has not relied upon any of these exemplary rationales. Although this list is not an exhaustive list of rationales used to support a *prima facie* case of obviousness, this list simply accentuates that, in the present case, the Examiner has not provided a “clear articulation of the reason(s) why the claimed invention would have been obvious,” as recommended by section 2141 of the MPEP and the Supreme Court’s decision in *KSR International*. On the contrary, the Examiner merely focuses upon the advantages of the claimed invention in seeking guidance on why one skilled in the art would combine the cited publications, which the Examiner admits do not teach or even suggest all of the elements of the claimed invention. Applicant submits that this is the very definition of impermissible hindsight.

Even assuming *arguendo* that the Examiner argues that it would have been “obvious to try,” Applicant submits that this rationale would be inappropriate because such a rationale is only proper where there is “a finite number of identified, predictable solutions, with a reasonable expectation of success.” Applicant submits that there are a myriad of ways in which one could to “provide efficient information for calculating equalization setting[s] for better interference cancellation or reduction” or “provide more information on received signals to refine [the] signal filtering process” (*see* pages 4 and 5 of the outstanding Office Action). Therefore, the Examiner has not set forth a *prima facie* case of obviousness because the Examiner has not provided a sound rationale from combining the teachings of these publications.

Accordingly, Applicant submits that independent claims 2, 3, 4, and 10 (and claims dependent therefrom) are not anticipated or rendered obvious by the cited publications, and respectfully request withdrawal of the rejections, and an indication of the allowability of all claims pending in the present application in due course. Applicant further submits that

dependent claims 5, 7, 8, and 9 are allowable for at least the same reasons applicable to independent claims 2, 3, 4, and 10, and additionally, for the specific features recited in each dependent claim. In view of the cancellation of claim 11, Applicant submits that the rejection of claim 11 is rendered moot.

SUMMARY AND CONCLUSION

In view of the foregoing, it is submitted that Examiner's rejections should be withdrawn. Entry and consideration of the present amendment, reconsideration of the outstanding Office Action, and allowance of the present application and all of the claims therein are respectfully requested and now believed to be appropriate.

Although it is within the discretion of the Examiner to enter amendments made after a Final Office Action, Applicant submits that the amendments clarify previously recited claim elements, do not raise new issues, and should not necessitate a new search. Accordingly, Applicant respectfully requests that the Examiner enter the amendments. Applicant has made a sincere effort to place the present invention in condition for allowance and believe that he has now done so.

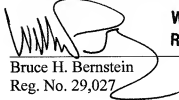
Applicant notes that this amendment is being made to advance prosecution of the application to allowance, and should not be considered as surrendering equivalents of the territory between the claims prior to the present amendment and the amended claims. Further, no acquiescence as to the propriety of the Examiner's rejection is made by the present amendment. All other amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should the Commissioner determine that an extension of time is required in order to render this response timely and/or complete, a formal request for an extension of time, under 37 C.F.R. §1.136(a), is herewith made in an amount equal to the time period required to render this

response timely and/or complete. The Commissioner is authorized to charge any required extension of time fee under 37 C.F.R. §1.17 to Deposit Account No. 19-0089.

Should the Examiner have any questions, please contact the undersigned at the telephone number provided below.

Respectfully submitted,
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